Model-based mechanical ventilation, the CURE Trial

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Abstract: Current practice in determining Mechanical Ventilation (MV) settings is highly variable with little consensus, forcing clinicians to rely on general approaches and clinical intuition. The Clinical Utilisation of Respiratory Elastance (CURE) system was developed to aid clinical determination of important MV settings by providing real-time patient-specific lung condition information at the patient bedside. The pilot clinical trials to investigate the performance and efficacy of this system are currently being carried out in the Christchurch Hospital ICU, New Zealand. This paper presents the CURE clinical trial protocol and its initial findings from the two patients recruited to date. In particular, this paper focuses on CURE's ability to determine patient-specific responses in real time to PEEP changes and recruitment manoeuvres (RM). The results from this study demonstrate the potential for CURE Soft to improve the reliability and ease with which clinicians make decisions about MV settings in the ICU.